

S/N: TBA

1/22/2002

DOCKET NO.: KAW-269-USAP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Zongtao GE

Serial No.: TO BE ASSIGNED

Art Unit: TO BE ASSIGNED

Filed: January 22, 2001

Examiner: TO BE ASSIGNED

For: Phase Shift Fringe Analysis Method and Apparatus Using the Same

**PRELIMINARY AMENDMENT**

Assistant Commissioner of  
Patent and Trademarks  
Washington, D.C. 20231  
BOX: PATENT APPLICATIONS

Sir:

After assigning a serial number to the above-captioned application and before calculating the fee, please undertake the following changes:

**IN THE SPECIFICATION:**

Please amend the paragraph [0017] beginning at line 8 of page 5 as follows:

[0017] From such a viewpoint, the assignee has obtained an excellent result with a technique for detecting the above-mentioned error resulting from the phase shift device and correcting the fringe image analysis according to the detection value upon carrying out the analysis. In this technique, the fringe image data obtained by use of the phase shift method is subjected to Fourier transform, the carrier frequency and complex amplitude caused by fluctuations in wavefront occurring between an object to

be observed and a reference, and the amounts of displacement and tilt of phase shift are detected according to the carrier frequency and complex amplitude, so as to correct results determined by the phase shift method, whereby influences caused by errors in the amount of tilt/displacement of the phase shift amount are eliminated.

Please amend the paragraph [0076] beginning at line 9 up from the bottom of page 19 as follows:

[0076] Without being restricted to the above-mentioned embodiment, the method of the present invention can be modified in various manners. When detected the inclination of the object in the method in accordance with the above-mentioned embodiment, fringe image data carrying the phase information from the object is acquired, the whole or part of each fringe image data is subsequently subjected to Fourier transform, so as to determine the phase information of the object in the fringe image data, and the inclination of the object is detected according to thus determined phase information. However, for example, the frequency of carrier fringes in the fringe image data may be determined in place of the phase information in the fringe image data, and the inclination of the object may be detected according to thus determined frequency of carrier fringes. A technique for detecting the inclination of the object by determining the frequency of carrier fringes in fringe image data as such is disclosed in detail in the

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specification of commonly-assigned U.S. Patent Application No.  
10/021,014.

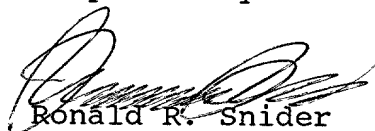
REMARKS

The amendments made to the specification were to correct grammatical and other errors. It is respectfully submitted that no new matter has been added by any of the amendments.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with Markings to Show Changes Made."

It is submitted that the present amendment places the application in good form for allowance, and an early and favorable action for this application is respectfully solicited.

Respectfully submitted,

  
Ronald R. Snider  
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Date: January 22, 2002

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RRS/bam

VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the Specification:

Paragraph [0017] beginning at line 8 of page 5 has been amended as follows:

[0017] From such a viewpoint, the assignee has [proposed] obtained an excellent result with a technique for [detected] detecting the above-mentioned error resulting from the phase shift device and correcting the fringe image analysis according to the detection value upon carrying out the analysis [(Japanese Patent Application No. 2000-277444)]. In this technique, the fringe image data obtained by use of the phase shift method is subjected to Fourier transform, the carrier frequency and complex amplitude caused by fluctuations in wavefront occurring between an object to be observed and a reference, and the amounts of displacement and tilt of phase shift are detected according to the carrier frequency and complex amplitude, so as to correct results determined by the phase shift method, whereby influences caused by errors in the amount of tilt/displacement of the phase shift amount are eliminated.

Paragraph [0076] beginning at line 9 from the bottom of page 19 has been amended as follows:

[0076] Without being restricted to the above-mentioned embodiment, the method of the present invention can be modified in various manners. When detected the inclination of the object in the method in accordance with the above-mentioned embodiment, fringe image data carrying the phase information from the object is acquired, the whole or part of each fringe image data is subsequently subjected to Fourier transform, so as to determine the phase information of the object in the fringe image data, and the inclination of the object is detected according to thus determined phase information. However, for example, the frequency of carrier fringes in the fringe image data may be determined in place of the phase information in the fringe image data, and the inclination of the object may be detected according to thus determined frequency of carrier fringes. A technique for ~~[detected]~~ detecting the inclination of the object by determining the frequency of carrier fringes in fringe image data as such is disclosed in detail in the specification of commonly-assigned [Japanese Patent Application No. 2000-397246] U.S. Patent Application No. 10/021,014.